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CURRENT SUPPORT BRIEF

INSTRUMENT PRODUCTION POSSIBLY INDICATIVE OF NEW SOVIET MISSILE FUEL DEVELOPMENT

OFFICE OF RESEARCH AND REPORTS

CENTRAL INTELLIGENCE AGENCY

This report represents the immediate views of the originating intelligence components of the Office of Research and Reports. Comments are solicited.

INSTRUMENT PRODUCTION POSSIBLY INDICATIVE OF NEW SOVIET MISSILE FUEL DEVELOPMENT

Production by the Khar'kov Control and Measuring Instruments Plant (KIP) of devices similar to those utilized in US missile propulsion system technology suggests that the plant may be involved in the Soviet missile program. The Khar'kov KIP produces gamma-ray devices possibly similiar to those used in US experiments on jelled rocket fuels suggesting that Soviet work with such fuels may also be underway. There is no other indication, however, of Soviet interest in this area.

By 1958-59 the Khar'kov KIP had developed devices for measuring and controlling the level of oil and slurries (thick solutions) pumped into tanks. These devices were based on contactless measuring instruments which utilized gamma radiation from a cesium source. 1/ The plant also developed other instruments including gamma relays, 2/ very small but powerful electric motors, 3/ "an apparatus for the remote measurement of heat engineering quantities", 4/ and devices for measuring and regulating line pressure, pressure head, and air-and-fuel consumption, 5/ such as diaphragm differential manometers. 6/

Specific applications in heavy industry were claimed for several of the instruments. A gamma-ray measuring device could be used in the oil industry and cement plants, and a heat control instrument was installed in a blast furnace. Instruments of the general types listed, however, could also be of great value in missile technology.

The reference to use of gamma-radiation is particularly interesting. An article in the 4 September 1961 issue of the US magazine Missiles and Rockets discussed current US experiments in measuring and controlling the rate of flow of jelled (slurried) rocket fuel by means of (contactless) gamma-ray devices. The radiation source described was cesium. 7/ Contactless methods would be of special value in situations where conventional sensor tubes might be subject to erosion or clogging because of the type of fuel used.

An article in the 1 May 1961 issue of Missiles and Rockets reported another current US experiment with slurried rocket fuel. A manufacturer claimed a specific impulse--in the US, the amount of thrust, in pounds, per pound of fuel--of 250, about as powerful as many liquid and solid fuels, and a storable life of eighteen months or more for his products. 8/ From the information reported, it would appear that the fuel is suitable for small and large missiles.

Analyst: [redacted]

Coord:

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